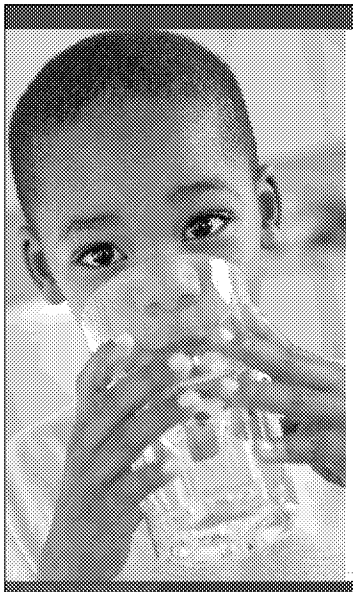

# NCEH/ATSDR Involvement in *Per- and Polyfluoroalkyl Substances (PFAS)*

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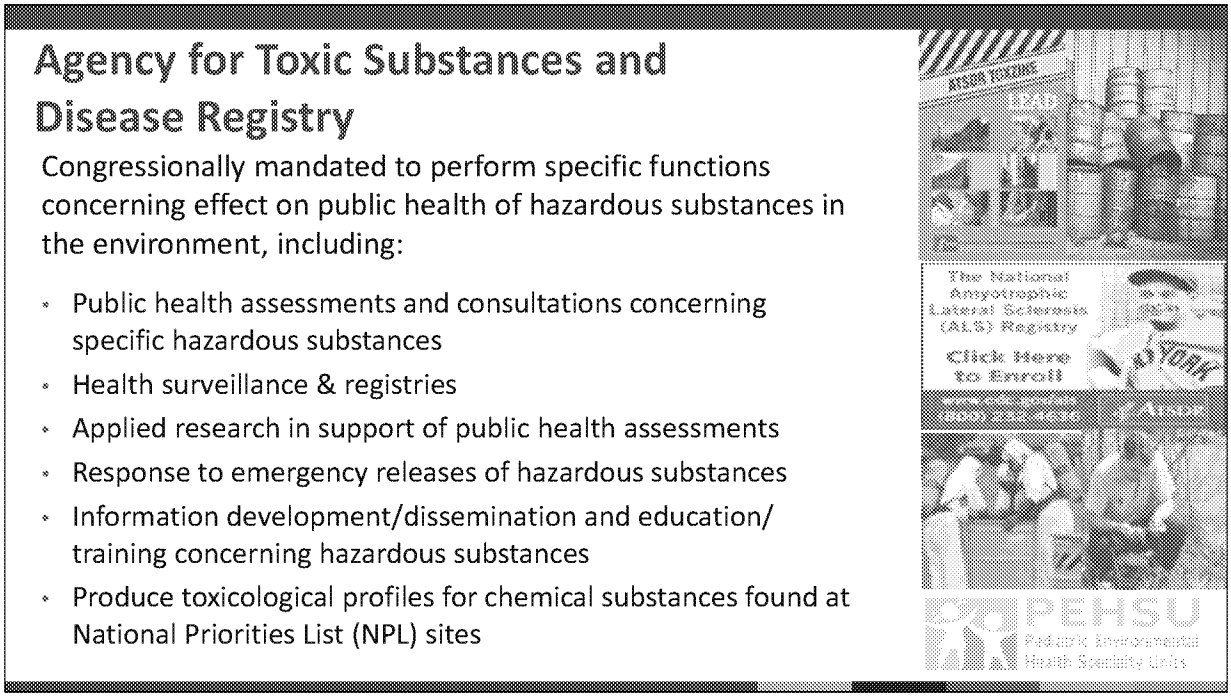
**Director, NCEH/ATSDR**

National Leadership Summit Per- and Polyfluoroalkyl Substances (PFAS)

May 22, 2018

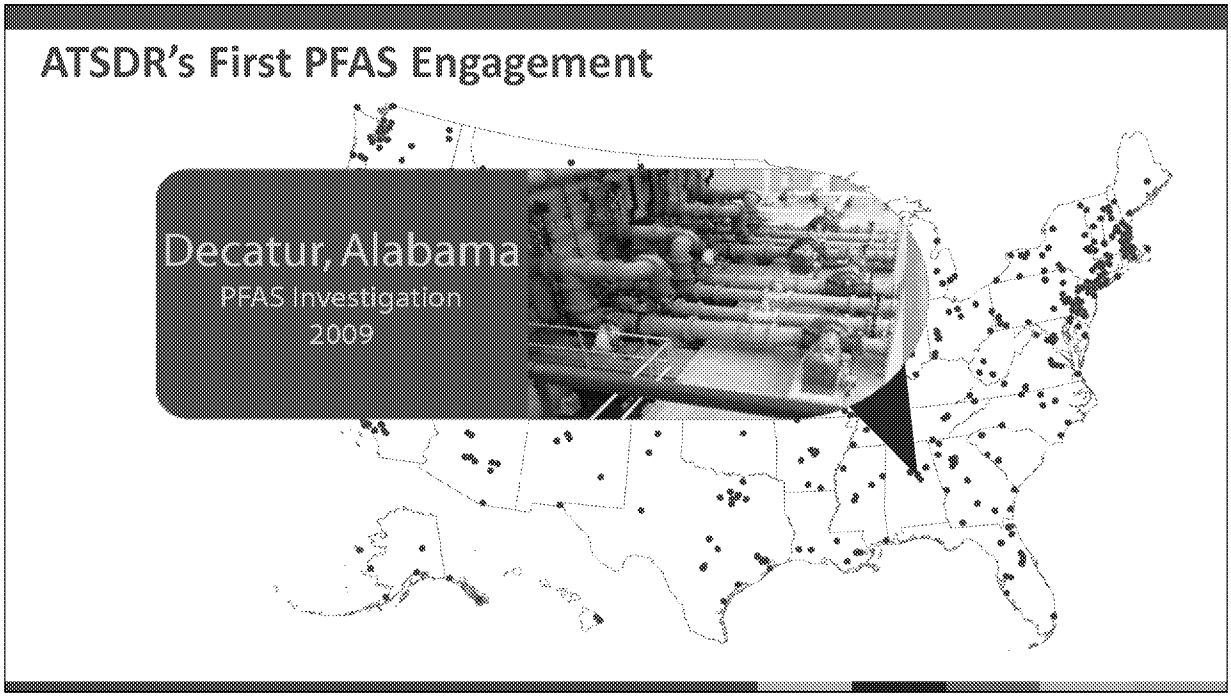
National Center for Environmental Health
Agency for Toxic Substances and Disease Registry




The Comprehensive Environmental Response, Compensation, and Liability Act, known as Superfund and also nicknamed CERCLA was passed by congress in 1980

Superfund gave EPA the responsibility for identifying, investigating, and cleaning up National Priority List sites.

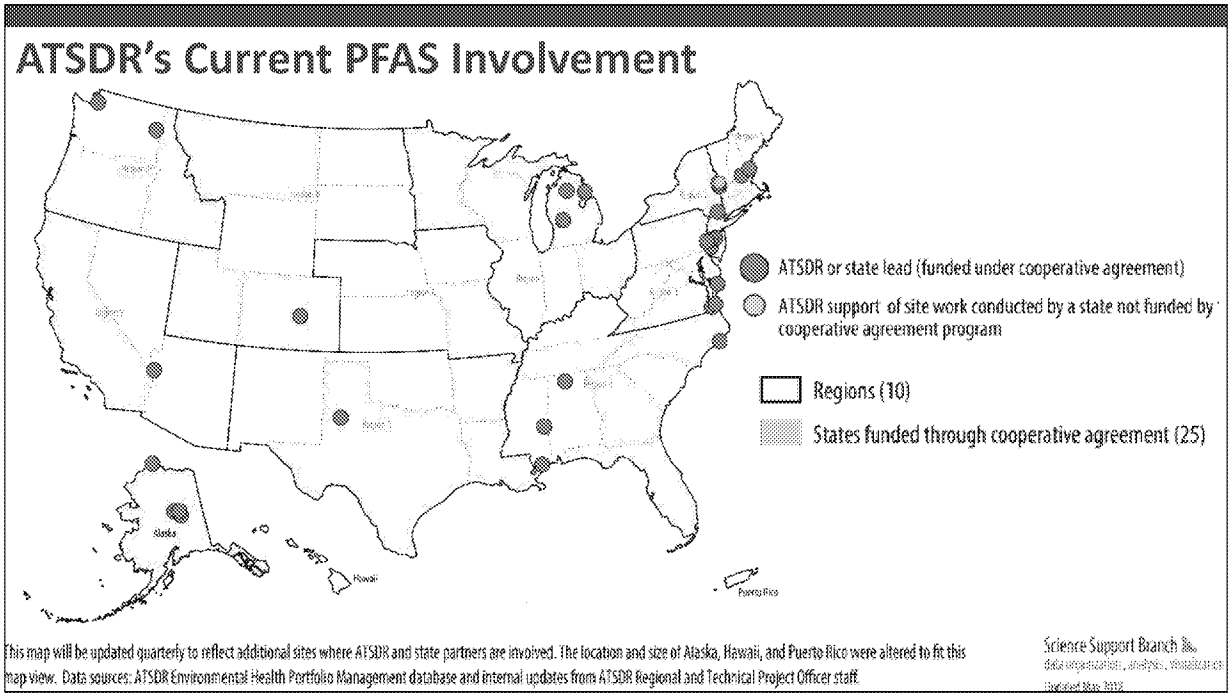
Mandated the creation of the Agency for Toxic Substances and Disease Registry (ATSDR) – a non regulatory, public health agency with key functions:
- Health assessments
- Toxicological profiles for chemical substances found at National Priorities List (NPL) sites
- Epi Studies
- Registries and medical surveillance




In 2007, a Perfluorinated Compound (PFC), though now known as PFAS, manufacturer released PFAS into a nearby creek. Contaminated sediment had then been applied to thousands of acres of fields in area around Decatur, AL.

2009 - Identified people with elevated PFAS levels:
Worked with the state health department to collect blood samples from people living in the area.
Tests showed that some people who had PFAS in their private wells and drank water from one particular water treatment system had PFAS at levels above the national average.

Protective Actions: Based on ATSDR's findings, EPA provided alternative water to people with contaminated drinking water wells. Additionally, the impacted water supply system, servicing more than 100,000 residents, voluntarily began immediate monitoring for PFAS and is working to identify and test ways to filter PFAS from the water as needed.




NCEH/ATSDR's overarching approach focuses on…
Assessing and reducing/eliminating community PFAS exposures
Addressing community health concerns related to existing or previous PFAS exposures, to support action on the basis of scientific information
Conducting health studies on exposure and health endpoints to provide actionable information to communities and health care providers

Map current as of May 2018.
Involved in 29 sites in 15 states. 62% (18 sites) are DOD sites.
Activities include site assessments, health education, technical assists to health departments, and exposure investigations.
Site investigations originate from petitions, federal and state requests.

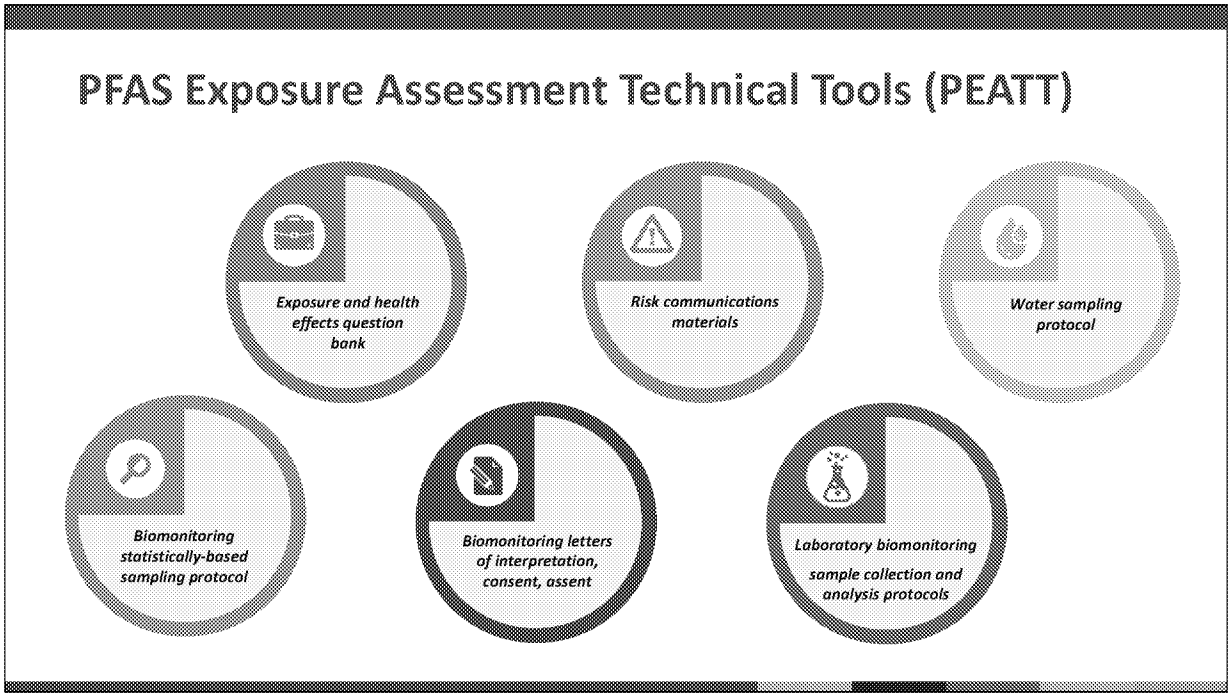

All of our site work involves extensive community engagement and support.

ATSDR has staff in all 10 EPA/HHS regions.

ATSDR staff provide community members, health educators, health care providers, and other health professionals with community environmental health education products to increase environmental health literacy.
These products include:
information about specific types of exposures to hazardous substances,
exposure routes and pathways,
health effects, and
how to prevent or minimize exposures to hazardous substances in the environment.

To specifically address community, state and local health department needs and the needs of health care providers, ATSDR has developed a variety PFAS related education materials, guidance such as the PEATT Toolkit, risk communication materials along with scientific materials and protocols.

ATSDR also created a Community Assistance Panel (CAP) for Pease as a way for the community to participate directly in ATSDR's health activities.
CAP members are voluntary, unpaid individuals from the Pease community.
CAP members work with ATSDR to:
gather and review community health concerns,
provide information on how people might have been exposed to hazardous substances, and
inform ATSDR how to involve the community.



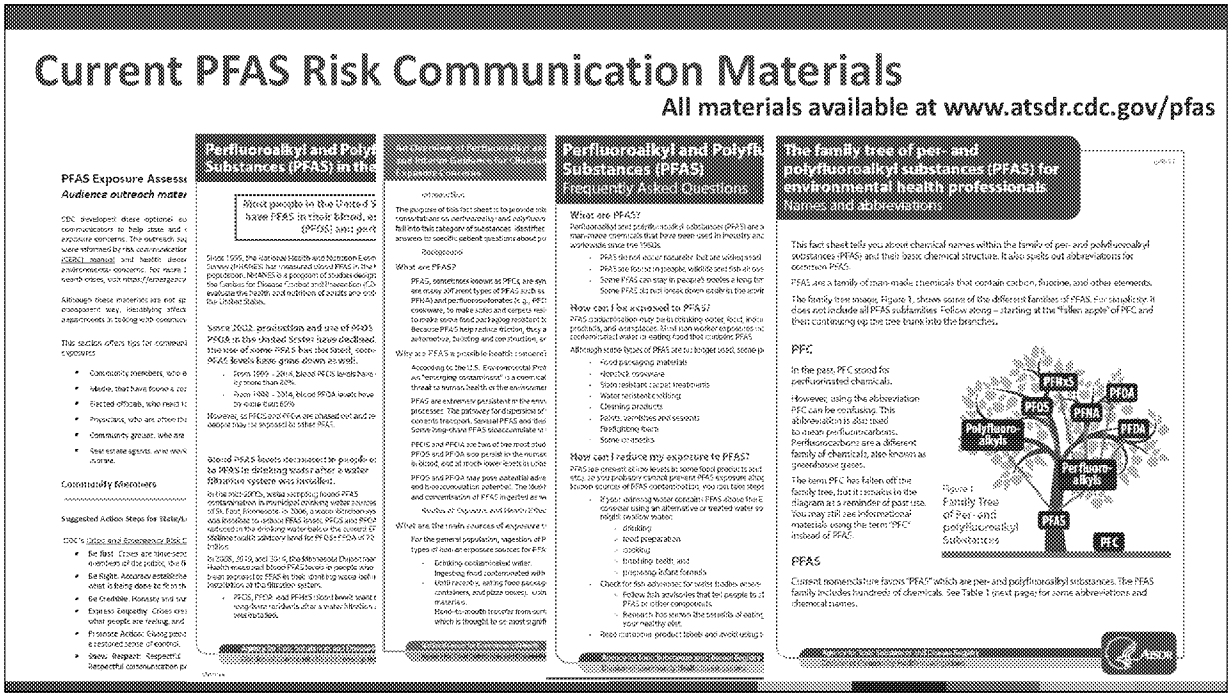

As mentioned, in response to the needs of communities, we developed the PFAS Exposure Assessment Technical Tools to help state, local, tribal, and territorial health departments conduct PFAS biomonitoring activities should they choose to.

Designed to characterize exposure in an affected population using biomonitoring
Includes a protocol for statistically based representative sampling

Designed to assess PFAS exposure primarily from drinking water

The toolkit consists of the following components including Risk Communication materials
Avaiable upon request by emailing pfas@cdc.gov

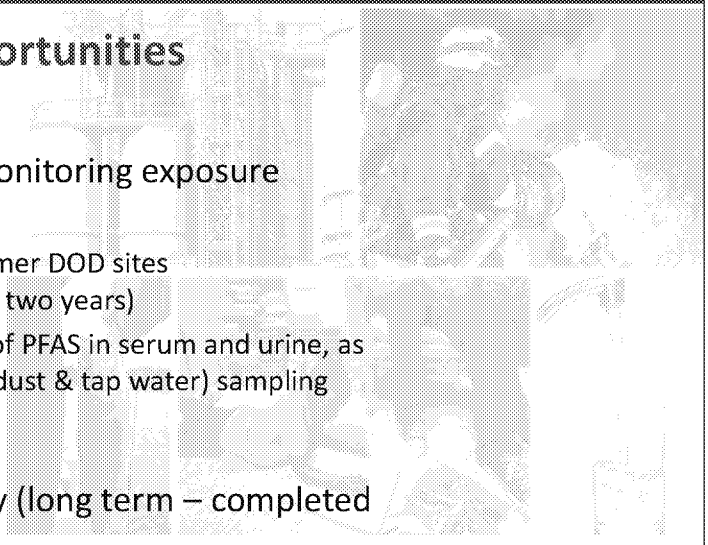
Currently working with ASTHO to pilot the PEATT in New York and Pennsylvania




Many of the PFAS Risk Communications materials are included in the PEATT and even more resources are available on our website at ATSDR.cdc.gov/pfas

Materials included resources such as:
Audience Outreach Guide on environmental exposures
The family tree of per- and polyfluoroalkyl substances (PFAS) for environmental health professionals - Names and abbreviations and a version for the public (in English and Spanish)
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Frequently Asked Questions (In English and Spanish)
An Overview of Perfluoroalkyl and Polyfluoroalkyl Substances and Interim Guidance for Clinicians Responding to Patient Exposure Concerns
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) in the U.S. Population
PFAS Continuing Education for Clinicians Training
Among other resources

# Upcoming Research Opportunities

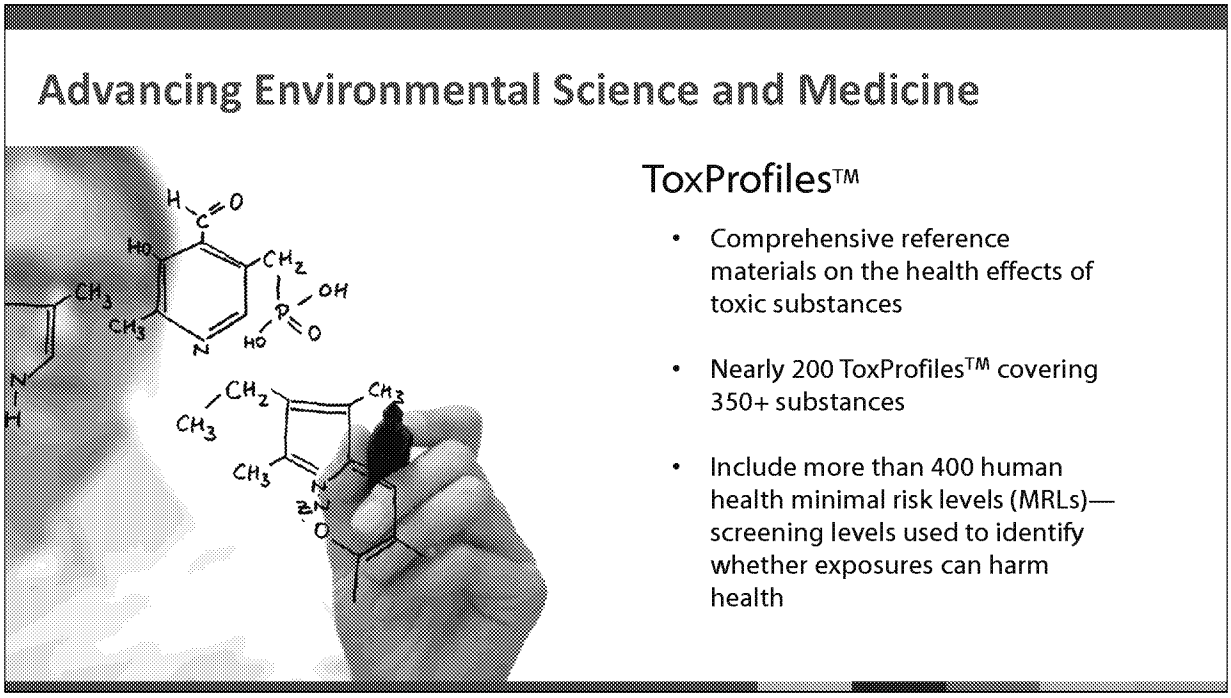


**Exposure Assessment**

- Statistically-based PFAS biomonitoring exposure assessments (EAs)
  - At no less than 8 current or former DOD sites (short term – completed within two years)
  - EAs will include measurement of PFAS in serum and urine, as well as limited environmental (dust & tap water) sampling

**PFAS Health Study**

- A multi-site PFAS health study (long term – completed over the next 5-7 years)
  - Study design will be informed by data from PFAS EAs




By Congressional mandate, the Agency for Toxic Substances and Disease Registry (ATSDR) produces toxicological profiles for chemical substances found at National Priorities List (NPL) sites.
4 PFAS substances are on that list.

There are nearly 200 ToxProfiles about more than 350 substances and they are heavily cited in peer-reviewed journal articles each year.

As part of these profiles, ATSDR has developed over 400 human health minimal risk levels (MRLs), which are screening values that allow health professionals to identify whether exposures could harm human health.

An MRL is not a regulatory standard. An MRL is an estimate of the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health. MRLs are developed for health effects other than cancer.
An MRL is an estimate of the amount of a chemical (often expressed in milligrams) a person can eat or drink each day, per kilogram of body weight, without a detectable risk to health. It can also estimate how many milligrams of a chemical a person can breathe in a cubic meter of air without a detectable risk to health. MRLs are developed for non-cancer health effects.

As you likely heard, ATSDR is preparing to release the draft PFAS Toxicological Profile again for public comment and will include provisional minimal risk levels (MRLs) for four substances.

MRLs are intended to serve as a screening tool to help public health professionals decide where to look more closely at potential health effects from the environment.

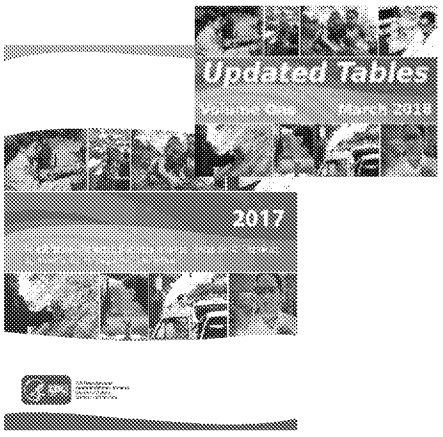
We are working with the EPA, DoD and other federal partners to provide consistent and proper interpretation of the role of MRLs, and how they should be used and interpreted.

We do not have a release date identified for the next public comment period, but additional comments received on this draft will be incorporated into the final PFAS Toxicological Profile.

Along with the Toxprofiles--some of which are several inches thick when printed out--ATSDR has developed shorter summaries called ToxFAQs™. These are short information sheets that answer the major questions about the health risks of hazardous substances.

# Environmental Health Lab

## Biomonitoring NHANES PFAS Data




| PFAS in serum | | 99–00 | 03–04 —11–12 | 13–14 |
|---|---|---|---|---|
| Short-alkyl chain | PFBS | | X | X |
| | PFHpA | X | X | X |
| Long-alkyl chain | PFHxS | X | X | X |
| | PFOS | X | X | X[a] |
| | PFOA | X | X | X[a] |
| | PFNA | X | X | X |
| | PFDA | X | X | X |
| | PFUnDA | X | X | X |
| | PFDoDA | X | X | X |
| | FOSA | X | X | |
| | EtFOSAA | X | X | |
| | MeFOSAA | X | X | X |

*No serum available in 2001-2
[a]Measured as isomers

The National Center for Environment Health also has a world renowned Environmental Health Lab that supports PFAS work by:

Maintaining the National Biomonitoring Network

Biomonitoring data for 300+ chemicals including pesticides, metals, and chemicals in everyday products, including a number of PFAS compounds

Biomonitoring Studies have measured PFAS levels in other groups:

Workers in PFAS manufacturing facilities,

Communities with contaminated drinking water, and

The general U.S. population

Publishing the annual National Report on Human Exposure to Environmental chemical based on the National Health and Nutrition Examination Survey (NHANES).

NHANES is the most comprehensive assessment of Americans' exposure to environmental chemicals and is a program of studies designed by the Centers for Disease Control and Prevention (CDC) to evaluate the health and nutrition of adults and children in the United States.

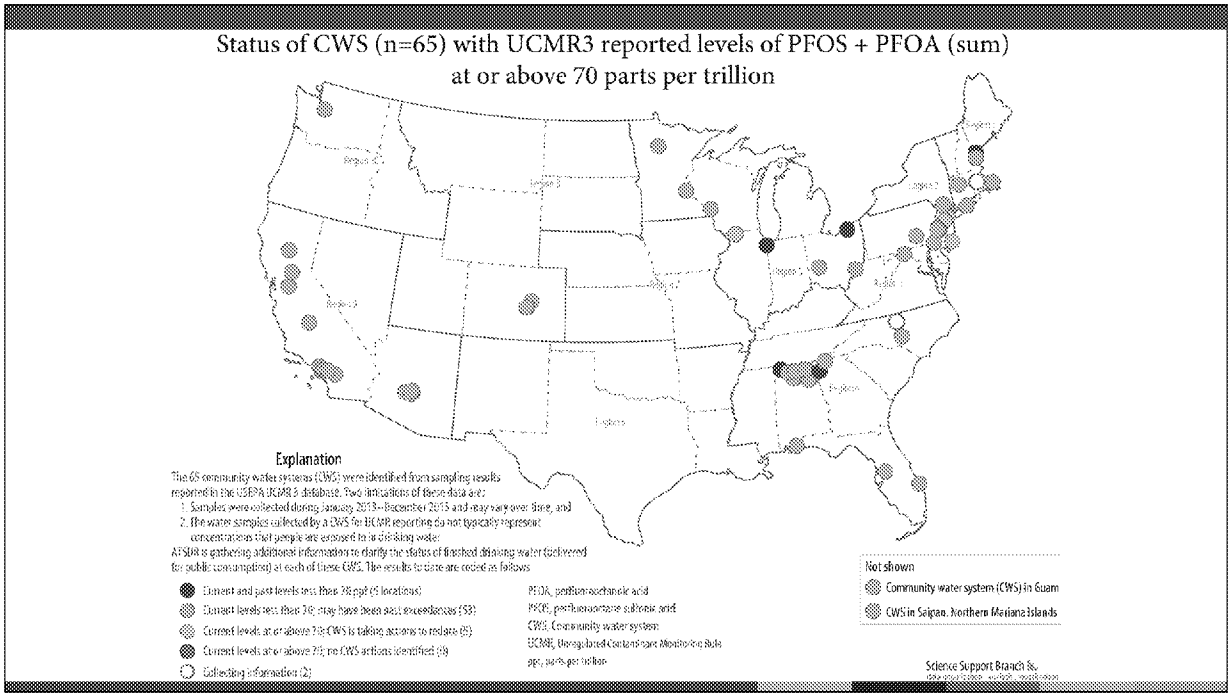
Since 1999, NHANES has measured blood PFAS in the U.S. population.

NHANES Is currently developing biomonitoring protocol(s) for urinary biomarkers for emerging compounds (e.g., GenX)

# Thank you

**https://www.atsdr.cdc.gov/pfas**

For more information, contact NCEH/ATSDR
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.atsdr.cdc.gov www.cdc.gov
Follow us on Twitter @CDCEnvironment




n = 65 public water systems with levels of PFOS + PFOA at or above 70 ppt reported in the UCMR3 database
The explanation and color codes here reflect more detailed info that ATSDR is assembling to clarify the status of the finished drinking water for each PWS

The 65 CWS shown on the map serve approximately 6 million people (5,955,056 to be exact).

# PFAS in drinking water has been a growing issue in recent years.

**January 2009**
EPA's Office of Water established provisional health advisories to assess potential risk from short-term exposure via drinking water
- 0.2 µg/L for PFOS
- 0.4 µg/L for PFOA

**May 2012**
As part of the Third Unregulated Contaminant Monitoring Rule, EPA required all community water systems serving >10,000 customers to monitor for PFCs twice in a 12-month period during 2013-2015

**August 2015**
ATSDR released draft Toxicological Profile for Perfluoroalkyls

**May 2016**
EPA issued Lifetime Health Advisory for PFOA and PFOS
- 0.07 µg/L for PFOA
- 0.07 µg/L for PFOS

or
- 0.07 µg/L for PFOA+PFOS

**August 2017**
PFOA, PFOS, PFNA, and PFHxS joined ATSDR's Substance Priority List, identifying them as substances of significant public health concern

**March 2018**
The 2018 Omnibus bill was signed into law, providing 10 million dollars to CDC/ATSDR to conduct PFAS Exposure Assessments and a Multi-site Health Study across the country

**April 2018**
NCEH and ATSDR continue to work together to investigate the relationship between PFAS and human health and provide resources to communities